PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of

Shuuji YANO, et al.

Docket No: Q68759

Appln. No.: 10/084,054

Group Art Unit: 2871

Confirmation No.: 6446

Examiner: George Y. WANG

Filed: February 28, 2002

For: OPTICALLY COMPENSATORY POLARIZER AND LIQUID-CRYSTAL DISPLAY DEVICE

REQUEST FOR RECONSIDERATION UNDER 37 C.F.R. § 1.111

MAIL STOP NON-FEE AMENDMENT
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In response to the Office Action dated November 20, 2003, along with a Petition for Extension of Time and appropriate fee, reconsideration and allowance of the subject application are respectfully requested. Upon entry of the is Request, claims 1 and 2 are pending in the application. Applicant respectfully submits that the pending claims define patentable subject matter.

Claims 1 and 2 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Yoshimi et al. (U.S. Patent No. 5,245,456; hereafter "Yoshimi") in view of newly cited Michihata et al. (U.S. Patent No. 6,320,042; hereafter "Michihata") and newly cited Ishii et al. (U.S. Patent Publication No. 2003/0049459). Applicant respectfully submits that the claimed invention would not have been rendered obvious in view of the cited references.

Independent claim 1 is directed to an optically compensatory polarizer comprising "a polarizer including an absorption type polarizing element, and transparent protective layers provided on opposite sides of said absorption type polarizing element, each of said transparent protective layers exhibiting an in-plane retardation of not larger than 10 nm and a thicknesswise retardation in a range of from 30 to 70 nm." Claim 1 further requires "at least one optically compensating film laminated on at least one of opposite surfaces of said polarizer so that a slow axis of each optically compensating film crosses an absorption axis of said polarizer perpendicularly, said optically compensating film exhibiting an in-plane retardation in a range of from 80 to 200 nm and $Nz = (nx - nz)/(nx - ny)$ in a range of from –0.2 to 0.2 … . "

As conceded by the Examiner, Yoshimi does not include "a polarizer including … transparent protective layers exhibiting an in-plane retardation of not larger than 10 nm and a thicknesswise retardation in a range of from 30 to 70 nm," as claimed. However, the Examiner maintains that Ishii (abstract) discloses a transparent protective layer exhibiting an in-plane retardation of not larger than 10 nm, and Michihata (column 9, lines 14-16) discloses a transparent protective layer exhibiting a thickness retardation on the range from 30 to 70 nm. Further, the Examiner asserts that "[i]t would have been obvious … to have integrated the aforementioned specifics of the transparent protective layers [of Ishii and Michihata into the protective layers of Yoshimi] since one would be motivated to minimize foreign particles (Michihata, col. 1, lines 42-49), improve durability and polarization efficiency by preventing drop in polarization efficiency, hue shift, and light leakage (Ishii, [0001], [0008], [0011]-[0015])."

Applicant respectfully submits that one of ordinary skill in the art would not have been motivated to modify the birefringent film of Yoshimi based on the teachings of Ishii and Michihata to produce the claimed invention.

Yoshimi discloses an elliptically polarizing plate wherein a polarizing plate and a retardation film (birefringent film) are laminated, which can prevent coloring at the time of white display by compensating due to retardation of the liquid cell. Although Yoshimi refers to characteristics of the birefringent film (which the Examiner alleges corresponds to the claimed optically compensating film), the cited reference does not disclose any features of the protective layer. Further, although Yoshimi discusses the improvement of the optical characteristics in the combination of the liquid crystal cell with the birefringent film, the cited reference does not disclose the characteristics of polarizer.

Both Michita and Ishii disclose a protective film for a polarizing element. Michita controls average molecular weight and molecular weight distribution of cellulose triacetate and suppresses the contained impurities amount to reduce the number of glittering points due to foreign materials and improve the processability (tractability). Michita also discloses in-plane retardation not larger than 30 nm (column 8, line 41). Ishii uses a protective film formed of cyclic olefin resin to thereby produce a polarizing plate wherein an amount of change of in-plane retardation 5 nm or less at 24 hours in an atmosphere of 80° C (exemplary retardation values of the protective film are shown in Table 1 of Ishii).

As discussed in the "Background of the Invention" section of the present application, in general, when two polarizing plates (polarizers) are laminated in the crossed-Nicol (transmission

axes of two polarizing plates are perpendicular) and the light-transmissive characteristics is measured, there is no light leakage in the case of viewing from the normal direction or in the case of viewing from the direction oblique against the plane of the display but in parallel to the optical axis. However, when viewing is made form the oblique direction at the azimuth shifted from the direction of the optical axis, the apparent angle between two optical axes in two polarizing plates is changed geometrically, and light leakage increases. This is also caused by the wavelength dispersion of the retardation. Further, leakage light is colored.

According to the present invention, by means of (i) relationship between the absorption axis of the polarizer and the slow axis of the optically compensating film, and (ii) the transparent protective film and optically compensating film with specific optical characteristics, the negative effects due to the wavelength dispersion are reduced to thereby prevent coloring of the leaked light, and light leakage is reduced even viewing from the oblique direction. See paragraph bridging pages 4 and 5 of the present application.

In order to be directed to unpatentable (i.e., obvious) subject matter, either (1) the references must expressly or impliedly suggest the claimed combination, or (2) the Examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in the light of the teachings of the references. *Ex parte Clapp*, 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985). The motivation to make a specific structure is not abstract, but practical, and is always related to the properties or uses one skilled in the art would expect the structure to have, if made. The critical inquiry is whether there is something in

the prior art as a whole to suggest the desirability, and thus the obviousness, of making the combination. *In re Newell*, 13 U.S.P.Q.2d 1248, 1250 (Fed. Cir. 1989).

The Examiner alleges that Michihata provides motivation from integrating the claimed thicknesswise retardation of transparent protective layers into transparent protective layers of the Yoshimi because one would be motivated to minimize foreign particles (citing col. 1, lines 42-49 of Michihata). However, nowhere does Michihata teach that the disclosed thicknesswise retardation (25 to 150 nm) minimizes foreign particles. Rather, Michihata (col. 1, line 42 - col. 49) teaches that minimization of foreign particles is obtained by utilizing a cellulose ester film, which is prepared by employing cotton liter or wood pulp as the raw material, having a value of weight average molecular weight Mw/number average molecular weight Mn of 3.5 to 5.0. That is, the thicknesswise retardation does not affect the surface quality (the presence of foreign particles) of the protective film. Thus, Applicant respectfully submits that the Examiner's alleged motivation for modifying Yoshimi based on Michita is improper.

The Examiner alleges that Ishii provides motivation from integrating the claimed in-plane retardation of transparent protective layers into transparent protective layers of the Yoshimi because one would be motivated to improve durability and polarization efficiency by preventing drop in polarization efficiency, hue shift, and light leakage (citing paragraphs [0001], [0008], [0011]-[0015] of Ishii). However, as discussed above, Ishii teaches utilizing a protective film formed of cyclic olefin resin to thereby produce a polarizing plate wherein an amount of change of in-plane retardation is 5 nm or less at 24 hours in an atmosphere of 80° Celcius (176° Fahrenheit). That is, Ishii teaches improving durability and polarization efficiency by minimizing the change of in-

plane retardation (i.e., limiting the change to 5 nm or less) under high temperature conditions. Thus, Ishii is not concerned with the actual value of the in-plane retardation but rather the change or shift of the value of the in-plane retardation over time due to exposure to extreme environmental conditions. That is, Ishii does not teach durability and polarization efficiency are improved by an in-plane retardation value of not larger than 10 nm, as claimed. Thus, Applicant respectfully submits that the Examiner's alleged motivation for modifying Yoshimi based on Ishii is also improper.

As discussed above, Yoshimi discloses a retardation film to improve coloring due to the change of the viewing angle against the liquid crystal cell. Michita discloses a method for minimizing foreign particles in a protective film. Ishii discloses using cyclic olefin materials for preparing a durable polarizing plate without degradation in performance under high temperature and humidity conditions. However, none of cited references discloses or teaches to suppress light leak and coloring of leaked light by the combination of a transparent protective film and an optically compensating film with particular optical characteristics as taught by the present invention. That is, each of the cited references is different in both use and object from the present invention which discloses an optically compensatory polarizer which functions in total by controlling the characteristics of the protective layers and the optically compensating film within the recited range.

When a prior art reference requires a selective combination to render obvious a subsequent invention, there must be some reason for the combination other than the hindsight gleaned from the invention itself. Something in the prior art as a whole must suggest the

desirability, and, thus the obviousness, of making the combination. *Uniroyal, Inc. v. Rudken-Wyley Corp.*, 5 U.S.P.Q.2d 1434 (Fed. Cir. 1988).

In view of the above, Applicant respectfully submits that claims 1 and 2 should be allowable because one of ordinary skill in the art would not have been motivated to modify the device of Yoshimi based on the teachings of Ishii and Michihata to produce the claimed invention.

Reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

Christopher R. Lipp
Registration No. 41,157

SUGHRUE MION, PLLC
Telephone: (202) 293-7060
Facsimile: (202) 293-7860

WASHINGTON OFFICE
23373
CUSTOMER NUMBER

Date: March 1, 2004

Attorney Docket No.: Q68759